

The wheat crop was good this year, but most other crops were seriously damaged. Hay, oats, and gardens were nearly failures and it is reported that corn will hardly make one-half the usual crop.

The Mississippi River maintained a stage above the average for dry seasons, but the smaller rivers were very low. Palmyra, Mo., had much trouble in obtaining sufficient water and it is reported that other small towns in this vicinity had a similar experience.

NOTES ON THE HEAT AND DROUGHT DURING THE SUMMER OF 1913 AT KANSAS CITY, MO.

By P. CONNOR, Local Forecaster.

The drought of 1913 was not being felt in this section until about the close of June. The rainfall for July, while quite good, was still insufficient for grain crops, fruits, and vegetables, owing to the excessively high temperatures, the unusually clear sky, and dry atmosphere. The showers were chiefly north of the Missouri River. A short distance west and south vegetation at the close of the month was in a deplorable condition. Prospects were never brighter for good crops in all lines than at the beginning of summer, but each succeeding week saw them diminish most discouragingly. However, crops of all kinds were in better condition this year at the close of July than in either 1901 or 1911.

August proved to be the blighting month and came with exceptional severity while everything was in urgent need of relief. It had next to the highest mean temperature of any month on the records, the lowest humidity, the least cloudiness, and the greatest amount of sunshine, and not one cloudy day. The merciless sunshine seemed to sap the vitality of plants even well watered. It appeared as if the tremendous heat overcame the capillary action and the respiratory powers of vegetation. All late crops were failures. Corn that promised fairly well at the beginning of the month was damaged 75 to 90 per cent, and dairy and stock cattle were being fed as in winter. Some localities report that water was never so scarce, 50 to 75 per cent of streams and stock ponds being dry, and farmers in many localities had to haul water 5 to 9 miles for their stock. This was the most serious problem that confronted them and was the cause of sending a record-breaking number of cattle to the local market. Pastures were absolutely gone, and the quantity of milk was reduced 25 to 50 per cent. Winter apples are a total failure, and the peach crop was about 50 per cent short.

The drought this year was about a month later than in 1901 and nearly two months later than in 1911, in consequence of which all early crops were saved.

In contrast with 1901, the health of the community was remarkably good. Few deaths were ascribed to the heat, and the general good health of the community had been publicly commented upon. While remarkably high night temperatures prevailed, the very dry atmosphere, coupled with gentle breezes, gave quite good rest at night, even indoors, although most people slept out of doors.

Quotations on the necessities of life would hardly be an exact index to the conditions in this section, as most of those products have been shipped in from States not so remote that the cost of transportation would add much to the purchase price. It is understood that merchants are placing smaller orders, in view of an inevitably re-

duced volume of business during the coming year. One large establishment is reported to have turned in only 65 per cent of the usual orders.

How the drought is viewed by other communities close by appears in the following notes:

Harrisonville, Mo., more severe than in 1901 and 1911.

Olathe, Kans., more severe than in 1901 and 1911.

Fort Scott, Kans., more severe than in 1901 and 1911.

Maryville, Mo., more severe than in 1901; about the same as 1911 for corn and other late crops.

Lexington, Mo., not so bad as 1901; more severe than 1911.

Dairy farm southwest of city, more severe than 1901 and 1911.

HEAT AND DROUGHT AT ST. JOSEPH, MO., DURING THE SUMMER OF 1913.

By W. S. BELDEN, Local Forecaster.

The deficiency in rainfall in this vicinity began about May 20 and continues at the present time, September 9, the actual rainfall for this period being 3.44 inches, or about 18 per cent of the normal amount. From July 8 to September 9, inclusive, there was only 0.64 inch of rainfall at this station, and during this time the temperature reached 90° or higher on 53 days and 100° or higher on 26 days, the highest reading being 105°. During the drought the prevailing wind direction was south, and the average velocity was somewhat above the normal. The relative humidity was decidedly deficient, especially in August, when at several 8 p. m. observations during the latter part of the month it was found to be as low as 20 per cent. From July 11 to September 9, inclusive, there was only one cloudy day.

The wheat, oats, and early cuttings of hay and other early crops were not affected by the drought, but the corn crop in this section will not exceed one-third of an average crop. Apples dropped badly and as result of the hot and dry weather there will be about one-tenth of a normal yield, the Jonathan and Grimes Golden yielding better than other varieties. Pastures have been barren of feed for weeks and the shipment of unfattened stock to market has been heavy. During the latter part of August one local railroad handled five times as many cars of stock as are usually handled at that time of year. The ground has become too dry and hard to plow with any degree of satisfaction, and as a result there has been practically no seeding of grass, especially alfalfa, and wheat seeding will be much delayed with diminished acreage.

In many places the dust in wagon roads is 3 inches deep. Hundreds of fires have been started by sparks from railway locomotives falling upon dry and parched vegetation, and the railroads are receiving many claims for damages resulting therefrom. Creeks and wells have failed to such an extent as to necessitate the shipment of water in some cases. Since August 3 five tank-car loads of water have been shipped daily from this place to Union Star, Mo., 25 miles distant. The failure of water supplies has also necessitated the hauling of much water by the railroads for their own use. A local contractor, who is building a concrete bridge over a creek never before known to go dry, is hauling water in barrels several miles in order to proceed with the work. At Maryville, Mo., the opening of schools has been delayed on account of the shortage of water, and the death rate in St. Joseph for August was considerably above the average, attributed to the adverse weather conditions.